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Introduction.

The Heritage of N. D. Kondratieff in the Context of Modern Problems of the World Economy*

Leonid E. Grinin and Andrey V. Korotayev

There are researchers whose problems and theories remain relevant for a long time after their death. Nikolai Kondratieff, an outstanding Russian economist, of course, is among them. He is one of those whose name is well-known around the world. On the occasion of the 125th anniversary of Kondratieff's birth and the 80th anniversary of his death which we commemorated respectively in 2017 and 2018 it is all the more important to highlight the relevance of his ideas. The papers of this issue are dedicated to the link between Kondratieff's ideas and the problems of modern economy and economic science.

As a peasant's son, Nikolai Kondratieff managed to realize his abilities and in his young years he became a professor of economics. In one of his Suzdal letters from prison (May 2, 1938) summing up the results of his activity he wrote, '... I did not acquire any education like most peasant children. Therefore, my character was shaped spontaneously in the hard school of life that I had to go through in my time. But without my character, I would never have made my way from a plow to the professor's lecturing desk' (Kondratieff 1991 [1931]: 559).¹

Nikolai Kondratieff made a significant contribution to various fields of economic science. He founded and headed the Conjuncture Institute, developed the theory of economic planning. During his lifetime he gained fame abroad. In Suzdal prison, Kondratieff wrote an outstanding work *The Basic Problems of Economic Statics and Dynamics*. Therefore, the assessment of the researcher's merits, made for his centenary, remains true, 'After six decades most of his works have not lost their significance and serve as a basis for the most relevant research. One should particularly mention the exceptional scientific rigor of his

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¹ For more details about Kondratieff's biography see Grinin, Devezas, and Korotayev 2012

analysis, which places him on a par with the outstanding economists and is a model for researchers in the field of social sciences' (Fontvielle 1992).

Among all significant contributions to a number of areas of economic science Kondratieff's theory of long cycles (waves) brought him the greatest popularity. But there is a misconception that Kondratieff discovered long cycles (waves) of conjuncture. Long-term price fluctuations (with a characteristic period of about 60 years) were known even before Kondratieff's birth (see Jevons 1884; Chuprov 1889; for more details see Grinin and Korotaev 2014a, 2014b). His merit was that he made the long-wave economic and social dynamics a subject of special analysis and for the first time created a logical theory supported by numerous empirical data and their conceptual explanations. In other words, Kondratieff was not a discoverer of long waves in economic and social dynamics, but the founder of the first scientific theory of these waves, which had already become long cycles in this theory (Kondratieff 2002 [1922]; 1988 [1923]; 1993 [1925]; 2002 [1926]; 2002 [1928]). Therefore, they are quite deservedly called 'Kondratieff waves' (see Grinin and Korotaev 2014a, 2014b). Thus, one can refer N. D. Kondratieff to a special type of researchers who, on the basis of already known facts, phenomena and strange things that had not been explained by science before, created a new theory that changed the understanding of the nature and patterns of phenomena in some or other area and opened wide horizons for further research.

Despite constant changes of the world economic situation, the theory of long waves appears to be useful in analyzing various situations. Nikolai Kondratieff himself, already imprisoned, rightly noted that some of his 'ideas and forecasts based on them stood the test of time and, apparently, became commonly accepted' (Kondratieff 1993 [1925]: 512). Concerning today's problems (to which a number of articles in the Yearbook are devoted), one can state that the World System is entering the new complex and turbulent epoch.

In the light of abovementioned and in terms of the forthcoming recession, the theory of long waves acquires special significance and serves as an important tool both for an adequate understanding of the current world-system processes and for their prediction. It is necessary to make progress in understanding of the coherent, albeit non-linear and complex, relationship between the medium- and long-term economic cycles. It is especially important as since the times of Joseph Schumpeter there has not been any noticeable shift in this regard (see Grinin and Korotayev 2014c; Grinin, Korotayev, and Tausch 2016).

One should note the fundamental difference in the functioning of the global and national economies which is not always taken into account. The fact is that in the modern world economy at the global level there is no powerful and well-adjusted mechanism with the use of monetary and non-monetary measures similar to the regulation at the national level. Therefore, at the supranational level, there are mostly undistorted economic laws that manifest themselves, as in pre-

vious times, in the form of short-term or long-term cycles in the national market economy. This is expressed in economic booms and declines of medium-term Juglar cycles (see, *e.g.*, Juglar 1862, 1889 [1862]; Tugan-Baranovsky 1894, 2008 [1913]; Schumpeter 1939; Grinin and Korotayev 2010, 2012; Grinin *et al.* 2010a, 2010b, 2011; Grinin, Korotayev, and Tsirel 2010c; Grinin and Korotayev 2014c, Grinin, Korotayev, and Tausch 2016), as well as in upward and downward phases of long Kondratieff cycles.

The modern world economy has a number of other characteristics that allow applying to it some phenomena that due to state regulation have almost gone in the past. We have written about some of them in our works (see, *e.g.*, Grinin and Korotayev 2010, 2012: Chapter 2; Grinin, Malkov, and Korotayev 2010a, 2010b, Grinin and Korotayev 2014c; Grinin, Korotayev, and Tausch 2016).

In their studies (partly presented in this Yearbook), the authors have sought, *inter alia*, to: 1) organically link the theory of long (Kondratieff) waves with the theory of medium-term (Juglar) cycles; 2) more accurately determine the impact of objective and subjective factors of cycles of different periodicity on economic ups and downs; 3) identify the impact of innovations on the economic dynamics at different phases of cycles; 4) use the theory of long waves in conjunction with the theory of changing technological modes to build scientifically-based forecasts.² In this Yearbook, the problems of crises and forecasts in the context of the theory of long waves receive the diverse coverage.

Only some of our conclusions regarding the relationship between innovation, long waves and medium-term economic cycles we can mention here (for more details see Grinin and Korotayev 2014b; Grinin, Korotayev, and Tausch 2016). More intensive crisis-depression phases of medium-term cycles in the downward phase of the Kondratieff wave inevitably require advanced and more radical innovations from society, not only in terms of technical and technological, but also in terms of social and legal, political, ideological and cultural aspects, in the system of international and through a broader lens world-systemic relations. Otherwise, society will not be able to overcome the negative effects of economic crises and get out of the depression.

Only profound changes in various spheres of society, as well as new approaches to the regulation of the economy will finally ensure the transition to a significant recovery. As a result, there occurs a transition to a new system of relations which opens up opportunities for economies to develop in the coming decades without such crisis manifestations. However, due to a relatively smooth further development, the need for reformations and renewal of relations weakens. Hence there is an accumulation of contradictions and structural flaws of the system, which over some time begin to manifest themselves (already at a

² The importance of this point is additionally explained by the fact that the theory of long cycles in conjunction with the theory of changing technological modes is one of the few in economic science, which allows building of scientifically-based forecasts.

qualitatively new level of development) in the form of more severe and/or prolonged recessions and depressions, and the development itself proceeds with less long and tumultuous phases of recovery upswing.

In other words, the upward phase exhausts the potential of structural changes of previous decades and is replaced by the downward phase. Thus, mostly through the medium-term cycles, the downward/decreasing phases of Kondratieff waves prepare the conditions for the transformation into upward/increasing downward ones. And, in turn, the lower severity of the crisis-depressive phases of the Juglar cycles at the upward phases of the Kondratieff waves determines their turn to downward phases. At present we are witnessing such a turn after a certain euphoria. That is why the most severe crises are the 'turning' ones, from the upward to downward phases and vice versa (in particular, the crises of 1847, 1873, 1929, 1973), including the latest global financial crisis.

Thus, the identification of the organic link between economic cycles of different durations plays an important role in determining the impact of various factors responsible for the emergence of crises, and developing recommendations to mitigate cyclical dynamics. It is also important to note that within each medium-term Juglar cycle there appear or actively develop new previously less popular financial technologies which become an important tool in the beginning and during an economic recovery (see Grinin and Korotayev 2010). The cycle that began after the 2008 crisis was not exceptional and demonstrated a whole range of such financial technologies, including quantitative easing, the attempts to artificially create inflation, cryptocurrencies, and extremely low interest rates up to negative ones. However, unfortunately, these factors could not contribute to a sustained recovery which is largely due to the fact that we are now at the downward phase of the fifth Kondratieff wave. But the recoveries are usually weaker at the downward phases (see above).

The economic crisis (collapse, recession and depression) is the most dramatic part of the economic medium-term Juglar cycle. Crises can be usually regarded as results of active growth; as such, growth inevitably creates structural tensions not only in the economy, but within the social system as a whole (the social institutions fit certain scales and volumes of phenomena and processes). But, of course, all crises, with some similarities, proceed in different ways. In addition, they differ significantly depending on whether they occur in the upward or downward phase of the long Kondratieff wave (see Kondratieff 2002: 380–381; see also Grinin and Korotayev 2014c; Grinin, Korotayev, and Tausch 2016).

Almost all cyclical crises are connected with disorder (or even fall and collapse) of monetary (gold and exchange currency) circulation, stock prices of shares and other securities (bonds, bills of credit, *etc.*), with various specula-

tions (including those with shares, raw materials, real estate, lands rich in minerals, etc.).³

Thus, practically no purely economic (in the meaning of purely industrial) crises exist, and possibly cannot exist at all. Economic crises are always connected with crises in the circulation sphere of numerous, and sometimes all, branches of economy: banking and crediting, gold and foreign currency, stock exchange, foreign commerce, wholesale trade and retail, capital movement sphere, securities emission, the sphere of speculation in various values including real estate. In some cases these spheres are leading as regards the main crisis vector; in other cases this role is played by processes proceeding in the field of heavy industry, construction, and transport (with excessive inventories, high volumes of production and long-term investments, excessive loans, etc.). The balance of such 'responsibility' for crisis in each particular case (and in each particular country even during one global crisis) may be greatly different. Crises in circulation sphere connected with disorders in the sphere of finance, funds, stock exchange, trade operations can precede industrial (economic) ones, happen simultaneously with them, or occur later. In this case, circulation crises usually have a depressive impact on the economy as a whole. Thus, downswing in different economy sectors and circulation crisis act as interrelated expressions of recession and depression phases in an economic cycle. At present, according to most economists, within the next two years we may face a new global recession which may affect both global financial markets and the economy (a number of its sectors are already in recession). Some papers of this issue mention the causes of the coming economic recession.

* * *

The papers of the present, the fourth issue of 'Kondratieff Waves', cover a whole range of problems. The speeches of Kondratieff medal laureates are also published.

The Yearbook consists of three sections.

Section 1 (*Long Waves in the Context of World Economy and Politics*) includes five articles.

It starts with an article by **Brian J. L. Berry, Denis J. Dean, and Euel Elliott** 'Jihadism on the Long-Wave Clock'. The thesis of this paper is that as Islam was freed from Ottoman control after World War I, as Muslim states achieved their independence after World War II, and as massive Muslim migra-

³ This gives grounds for some analytic researchers to state that all financial crises starting from the 17th-century famous 'tulip fever' in Holland developed according to one and the same scheme (see, e.g. Minsky 1983, 1985, 1986, 2005). This conclusion being essentially true (from the psychological aspect as well), it is still a great simplification as each financial (and still more economic) crisis is produced by a combination of factors (see Haberler 2008). What is more, every crisis is produced by its own specific combination of factors, which always makes it different from others (see Hansen 1959)

tion to the West occurred, long-wave crises replaced colonial expansion as the trigger for jihad. The surges of new jihadist organizations emerged in two clusters, the first in the crisis years during and after the 1980–1981 long-wave peak and the second during the 2007–2011 long-wave trough. Such long-wave crises now are perceived by jihadists to be the onset of the Tribulation, the period when hardships and disaster afflict the world, signaling the imminent second coming of the Mahdi (Messiah) who will cleanse the world. The surges of jihadism thus now have to be understood to be newly-acquired manifestations of the global long-wave dynamic.

Andrea Komlosy ('Crises, Long Waves and World-System Analysis') introduces the concept of long waves or business cycles. The paper argues that by framing business cycles in a world-system perspective, its initially Western centric character could be overcome and could be used for analyzing the polarizing tendencies of global capitalism as an uneven and combined economic system, constantly producing and reproducing cores and peripheries. Moreover, world-system scholars interconnected business cycles with hegemonic cycles, characterized by a *primus inter pares* among the dominant core powers. While the hegemon is acquiring an accepted leading position based on economic, military and cultural power, cyclical change is undermining this position, giving way for competing successors. Based on historical explorations of British and US hegemony, the article discusses the prospects of a hegemonic succession after the decline of the United States. It analyzes whether such a hegemonic change will take place in the framework of the capitalist world system, eventually leading to a period of presumably Chinese hegemony, or whether the current global turmoil will rather open a period of chaos, putting an end to the cyclical renewal of global capitalism, as we experienced during the last 500 years.

According to **Leonid E. Grinin** and **Andrey V. Korotayev** ('The Inflationary and Deflationary Trends in the Global Economy in the Light of the Long Cycles' Theory') the danger of deflation has been rather frequently mentioned recently among numerous concerns over the European and partly American economies. Analysts cite the Japanese economy which has been suffering from deflation for the last two decades despite the large investments in economy and the government's efforts to increase inflation. Similarly, notwithstanding many trillions of dollars, euros, pounds and yen that were invested in economies over the past few years, the inflation in the Western countries still remains low.

On the whole, there are reasons to maintain that European countries suffer from 'the Japanese disease', and this disease can progress or even become chronic. The USA, albeit to a lesser extent, has signs of the disease as well. As a result, the financial infusions can become permanent, as it happened in Japan. The present paper defines reasons of the problem, explains the irregularity of the inflation-deflation processes in the world and also offers some forecasts on

this basis that the crisis-depressive phase of development in the global economy will continue for a relatively long time. Based on their analysis of available resources and the theory of long cycles, the authors suppose that the new crisis will begin in 2020. We also suppose that in the next 5–10 years, the global economy will continue being in the crisis-depression phase with rather sluggish and weak rises. The paper also offers some forecasts for the forthcoming sixth Kondratieff wave (2020 – the 2060/70s), identifies its possible technological basis and discusses possible consequences of the forthcoming technological transformations.

Stephen I. Ternyik ('The Supreme Kondratieff: Exponentiality, Teleology and the DNA of Economic History (The Future Balance of Wealth and Health)') points out that exponentiality is a naturally and physically new learning experience for the human mindset, which is by evolutionary patterns used to geometric quantities of information processing, for example by linear or eventually short cubic increases of knowledge. Exponential knowledge automation will shake the very fundamentals of classical political economy, since a limited number of private banking corporations does decide about the fiat credit (monetary) flow, that is backed by the extremely concentrated land value in natural resources and real estate as a transaction collateral, which has now entered even the speed of cyberspace. The great transition and transformation of the capitalist welfare system are possible only if a new societal deal is worked out which would provide all citizens with more quantitative access to education, health care and social security in the economic jackpot of human living chances. A capital-based economy, which taxes economic rent as public revenue, can achieve exactly this societal goal of basic mutual existential guarantees. An earth sharing economy will be the best insurance for a non-killing policy on this planet. Therefore, the Sisyphean accounts of society should be radically reformed in terms of a sustainable taxation system.

Leonid E. Grinin ('Kondratieff Waves, Technological Paradigms, and the Theory of Production Revolutions') considers Kondratieff waves theory in comparison with the theory of production revolutions which analyzes the regularities of the major technological breakthroughs in history. Both theories analyze the processes of cyclic nature related to the innovative technological development of the World-System. The mutual comparison of both theories allows the author to make important clarifications in understanding of the long-wave dynamics as a whole, as well as to give relevant explanations of the peculiarities of the unfolding of each of the five waves and their phases, to make forecasts about the sixth wave and the development of technologies of the sixth technological mode. The special attention is paid to the analysis of aspects and limitations of the theory of technological modes, as it is used by many researchers to explain the causes of the long-wave dynamics.

Section 2 (Kondratieff Medal: Winners' Speeches) consists of thirteen articles.

This section is devoted to the speeches of Kondratieff Medal laureates of 2017 and includes the essays on some important issues of economic science from **Fred Phillips** (Gold medal), **Brian J. L. Berry** (Silver medal), **Ibrahim Fraihat** (Bronze medal), **Valentina M. Bondarenko** (Gold medal), **Pavel A. Minakir** (Gold medal), **Vil K. Nusratullin** (Silver medal), **Mikhail N. Dudin** (Bronze medal), **Svetlana Yu. Romyantseva** (Bronze medal), **Anton L. Grinin** (Commemorative medal), **Violetta V. Arkhipova** (Commemorative medal), **Olga O. Komarevtseva** (Commemorative medal), **Tatiana S. Malakhova** (Commemorative medal), **Andrey E. Kozlov** (Commemorative medal).

Section 3 (Reviews and Notes) includes **Anthony Harper's** review of Leonid Grinin, Andrey Korotayev and Arno Tausch's monograph 'Economic Cycles, Crises, and the Global Periphery' published by Springer International Publishing.

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